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SECRET

FINAL REPORT

November 1952

CHAPTER SIX

COMBUSTION SPECTROSCOPY

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CHAPTER SIX

COMBUSTION SPECTROSCOPY

I. Introduction

1. This chapter is included for a number of reasons. Since combustion processes produce radiations whose spectra have properties like those of atmospheric radiations, the writer has maintained a more than casual interest in this field. With the suggestion in mind also, that the spectrum of a jet exhaust may give us clues as to the character of fuels and their combustion efficiencies, it seemed desirable to spend a few hours while in London in visiting two people whose interests are in the study of combustion kinetics. By the end of 1952 there will have been several important conferences or symposia on the problems of combustion. These include the Faraday Society meeting in Canada last fall, the Symposium on Combustion in Cambridge, Mass. in September, and the Symposium on Combustion Spectroscopy in Inyokern in December. The interest is great and increasing. A few reprints of the Faraday Society discussion are included as attachments to this chapter.

II. Dr. A. G. Gaydon

1. The writer visited Dr. A. G. Gaydon of the Chemical Engineering Department, Imperial College, London, to invite him to participate in the Inyokern symposium. This program was called to the attention of ATIC sometime ago, and interest in it was indicated. Any items of special interest to ATIC will be reported to it by the writer. Dr. Gaydon and Dr. H. G. Wolfhard, who is also participating in the Inyokern meeting, have published many papers on the spectroscopic studies of low pressure

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flames. Discussions with Dr. Gaydon revealed a very broad point of view which recognized the relationships between astrophysics, geophysics and combustion processes to which the writer called attention in Chapter Twelve. It should be possible during the visits of Dr. Gaydon and others to California this winter, to determine how much they know about the work going on in the USSR. One point of particular interest will be to see the extent to which USSR experts in combustion are looking to astrophysicists and upper atmospheric physicists for information.

III. Dr. George Szasz

1. Dr. George Szasz of the Office of Naval Research in London was of considerable help in arranging the participation of the four British physicists and chemists in the Bipolkem meeting. Dr. Szasz is probably the best informed man in Europe today on spectroscopic researches relative to chemical kinetics.

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